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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,431	12/06/2001	Chul-Bae Ham	1144.40930X00	7424

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EXAMINER

BHATNAGAR, ANAND P

ART UNIT PAPER NUMBER

2623

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/003,431	Applicant(s) HAM, CHUL-BAE	
	Examiner Anand Bhatnagar	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/27/03 & 1/20/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinoshita et al. (U.S. patent 5,757,949).

Regarding claim 1: Kinoshita et al. discloses a method for recognizing a curved lane in a road modeling system (fig. 3 elements 25, 26, 41, and 42, fig. 5 and col. 4 lines 56-66, wherein the curve is detected), the method comprising:

(a) dividing an image processing range into an upper range and a lower range if photographs of lane images are supplied (fig. 5, wherein the image processing divides the image into two ranges, a lower one and an upper one. The straight portion of the lane (segment L) is seen as the lower range while the curved portion (segment C) is seen as the upper range;

(b) modeling straight lines in the two divided image processing ranges respectively, and obtaining a curvature of the lane using the modeled straight lines (fig. 5, wherein the R sub c line and the line starting at the same initial point as the R sub c line and extending to the opposite part of the lane which is at the

starting of the curve portion of the lane, are read as the two modeled lines, from which the curvature of the road is determined).

Regarding claim 2: The method wherein step (b) comprises:

(c) modeling straight lines in the two ranges respectively (fig. 5, wherein the R sub c line and the line starting at the same initial point as the R sub c line and extending to the opposite part of the lane which is at the starting of the curve portion of the lane, are read as the two modeled lines, from which the curvature of the road is determined),

(d) obtaining a triangle, two sides of which are the two modeled lines (fig. 5, wherein the R sub c line and the line starting at the same initial point as the R sub c line and extending to the opposite part of the lane which is at the starting of the curve portion of the lane, together form a triangle in the curvature portion of the lane);

(e) calculating a radius of a circumcircle of the triangle and estimating therewith a curvature of the lane (fig. 3 elements 41 and 42, col. 4 lines 60-62, and col. 5 lines 1-5).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. (U.S. patent 5,757,949) and Mine (U.S. patent 6,138,084).

Regarding claim 4: The method wherein the curvature of the lane is estimated by an angle between the two modeled straight lines.

Kinoshita et al. discloses to detect the curvature of a road by using modeled lines (Kinoshita et al.; fig. 5 and col. 4 lines 60-67). Kinoshita et al. does not teach to use a angle between the lines to determine the curvature of the lane/road. Mine teaches to use lines/angles to detect the curvature of a road (Mine; figs. 2 and 3 and col. 6 lines 14-50). It would have been obvious to one skilled in the art to combine the teaching, of using an angle modified wherein the angle is in between the lines, of Mine to the system of Kinoshita et al. in order to determine the road conditions and traffic conditions by recognizing the road extending ahead of the vehicle (Mine; col. 2 lines 15-17).

Allowable Subject Matter

3. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

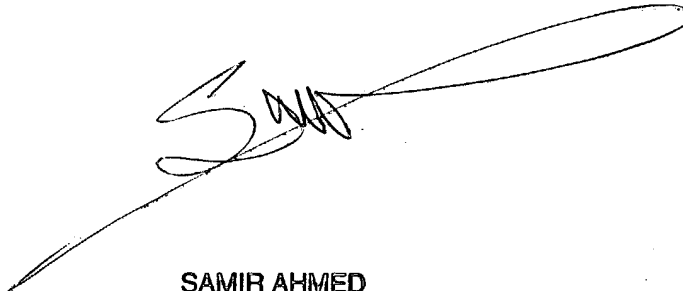
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Yasui et al. (U.S. patent 6,493,458 B2) for a lane detecting system.

Arai (U.S. patent 6,813,370) for a lane marker recognizing system.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anand Bhatnagar whose telephone number is (703) 306-5914, whose supervisor is Amelia Au whose number is 703-308-6604, group fax is 703-872-9306, and Tech center 2600 customer service office number is 703-306-0377.

A handwritten signature in black ink, appearing to read 'SAMIR AHMED', with a long, sweeping horizontal stroke extending to the right.

SAMIR AHMED
PRIMARY EXAMINER

Handwritten initials 'AB' in black ink, with the 'A' and 'B' connected.

Anand Bhatnagar

Art Unit 2623

December 3, 2004